REMARKS

Review and reconsideration of the application in view of Applicants' amendments and remarks are respectfully requested. Claims 1-5, 7-22 are pending in the application.

Claims 1-5, 7-20 have been rejected under 35 USC §103(a) as being unpatentable over Hartley et al (US 4,853,737) and incorporated by reference Lentz (US 4,257,699) in view of Schlueter, Jr. et al (US 5,995,796), Kirk-Othmer (Encyclopedia of Chemical Technology, 1994) and Lewis (Hawley's Chemical Dictionary, 1997) for the reasons of record as set forth in Paragraph No. 3 of the Office Action mailed on March 23, 2005.

Claims 1-5, 7-22 have been rejected under 35 USC §103(a) as being unpatentable over Hartley et al (US 4,853,737) in view of Schlueter, Jr. et al (US 5,995,796), Blong et al (US 5,549,948), Kirk-Othmer (Encyclopedia of Chemical Technology, 1994) and Lewis (Hawley's Chemical Dictionary, 1997) for the reasons of record as set forth in Paragraph No. 4 of the Office Action mailed on March 23, 2005.

Claims 1-5, 7-20 have been rejected under 35 USC §103(a) as being unpatentable over Hartley et al (US 4,853,737) and incorporated by reference Lentz (US 4,257,699) in view of Schlueter, Jr. et al (US 5,995,796), further in view of Friedman et al (US 5,908,704) for the reasons as set forth in Paragraph No. 5 of the Office Action mailed on March 23, 2005.

Claims 1-5, 7-22 have been rejected under 35 USC §103(a) as being unpatentable over Hartley et al (US 4,853,737) in view of Schlueter, Jr. et al (US 5,995,796) and Blong et al (US 5,549,948), further in view of Friedman et al (US 5,908,704) for the reasons as set forth in Paragraph No. 6 of the Office Action mailed on March 23, 2005.

Claims 1-5, 7-20 have been rejected under 35 USC §103(a) as being unpatentable over Hartley et al (US 4,853,737) and incorporated by reference Lentz (US 4,257,699) in view of Schlueter, Jr. et al (US 5,995,796), further in view of Applicants' admitted state of art and Thullen et al (US Publication No. 2003/0232207) for the reasons as set forth in Paragraph No. 7 of the Office Action mailed on March 23, 2005.

Claims 1-5, 7-22 have been rejected under 35 USC §103(a) as being unpatentable over Hartley et al (US 4,853,737) in view of Schlueter, Jr. et al (US 5,995,796) and Blong et al (US 5,549,948), further in view of Applicants' admitted state of art and Thullen et al (US Publication No. 2003/0232207) for the reasons as set forth in Paragraph No. 8 of the Office Action mailed on March 23, 2005.

All of the foregoing rejections are respectfully traversed.

Hartley, the primary reference cited in the rejection of the claims of the instant application, discloses a fuser roll having an outer layer that comprises cured fluoroelastomer having pendant polydiorganosiloxane segments that are covalently bonded to the fluoroelastomer backbone. DuPont Viton® A and Viton® B are cited as suitable fluoroelastomer base polymers. Lentz and Schlueter, and Eddy et al., U.S. Patent 5,017,432 ("Eddy") also disclose compositions containing cured such as Viton® A and Viton® B. Hartley, Lentz, and Schlueter, all of which disclose Viton® fluoroelastomers, are cited in the rejection of the instant claims, which are directed to compositions containing fluorocarbon thermoplastic random copolymers such as Dyneon™ THV fluorothermoplastics. In the previous communications, the Examiner has repeatedly remarked that Hartley does not expressly show that the disclosed fluoroelastomers are thermoplastic. In response, the applicants have continued to assert that Hartley does not expressly teach that cured fluoroelastomers are thermoplastic because they are, in fact, not thermoplastic.

As taught in the instant specification, high temperature curing of a fluoroelastomer release layer can cause damage to a fuser roll, for example, depolymerization of silicone rubber in the cushion layer. The method of the present invention advantageously provides for the curing of a layer formed from a fluorocarbon thermoplastic copolymer composition at a substantially lower temperature of 25°C to 120°C, preferably 25°C to 50°C, more preferably 25°C. This benefit is enabled by the inclusion of antimony doped tin oxide particles in the coating composition.

The Examiner has acknowledged that Hartley fails to teach the inclusion in the composition of antimony doped tin oxide, relying on Schlueter to supply this missing disclosure. As taught at page 11, line 28 to page 12, line 3 of the instant specification, the inclusion of antimony doped tin oxide particles is crucial

for drastically lowering the curing temperature of the coated thermoplastic polymer, from 220 to 280°C to as low as room temperature (25°C). The elastomeric compositions of Schlueter include antimony doped tin oxide as an electrically conductive filler, but the reference cites no curing temperature, simply stating that the composition is subjected to a "step heat cure" for approximately 24 hours. Hartley teaches curing temperatures of at least 230°C, and Lentz includes an example with a curing temperature of 232°C. There is no teaching in any of the cited references of a metal oxide or combination of oxides being used to enable low temperature, between 25 and 120 °C, curing of a fluoropolymer layer. Thus, the Examiner fails provide a prima facia case of obviousness.

In each of the rejections cited by the Examiner, there is no teaching or suggestion of low temperature curing of the thermoplastic.

Hartley at column 8, lines 26-28 requires that curing treatment be carried out at temperatures of at least 230 °C. The fluoroelastomers of Hartley cannot be cured at lower temperatures. Therefore, Harley fails to teach an essential element of the claimed invention. Schlueter is cited by the Examiner teaching that antimony doped tin oxides added to a fluoroelastomer/aminosiloxane copolymer. However Schlueter does remedy the deficiency of the high temperature cure times required by Hartley.

This deficiency in Hartley is because Hartley is concerned with fluoroelastomers, not thermoplastics. It is impossible to cure the fluoroelastomers of Hartley at the temperatures claimed in the present invention.

Friedman is concerned with a protective glazing laminate which has two layer protective glazing layers and a fluoropolymer interlayer. The fluorpolymer is taught to be melt processable at temperatures as low as 115 °C. However, there is no temperature of low temperature curing and such polymer in Friedman would not cure at the low temperature claimed in the present invention. Thullen also fails to teach low temperature curing to the thermoplastic.

The foregoing discussion makes clear that fluoroelastomers and fluorocarbon thermoplastics are well recognized in the art as distinct types of materials, even if they are formed from the same monomers in amounts falling within the same specified ranges. In the process of the present invention, a composition that includes a fluorocarbon thermoplastic random copolymer, a curing agent, and antimony-doped tin oxide particles is cured at low temperatures,

in the range of 25°C to 120°C. The disclosures of Hartley, Lentz, and Schlueter all teach compositions comprising fluoroelastomers, which typically are cured at elevated temperatures. Blong, which does disclose a composition containing thermoplastic fluoropolymers, is silent with respect to curing of these polymers or to the inclusion of antimony-doped tin oxide particles in the composition. Friedman, Thullen, Kirk-Othmer and Lewis fail to teach a low temperature curing step as claimed in the instant invention. The teachings of these references are not combinable and, in any event, fail to render obvious the applicants' invention. Withdrawal of the §103(a) final rejection of claims 1-5 and 7-22 and allowance of this case is, therefore, earnestly solicited.

For at least the reasons set forth above, Applicants submit all of Claims 1-5 and 7-22 are in condition for allowance. Prompt and favorable action is respectfully requested.

Should the Examiner require anything further, or have any questions, the Examiner is asked to contact Applicants' undersigned representative.

Respectfully submitted,

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If the Examiner is unable to reach the Applicant(s) Attorney at the telephone number provided, the Examiner is requested to communicate with Eastman Kodak Company Patent Operations at (585) 477-4656.